ARRL The national association for AMATEUR RADIO
INTERNATIONAL SECRETARIAT OF THE INTERNATIONAL AMATEUR RADIO UNION

September 22, 2004

Commissioner Jonathan S. Adelstein
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Dear Commissioner Adelstein:

Thank you for taking the time to meet with ARRL representatives today.

We understand that the Office of Engineering and Technology is planning to present the Commissioners with a draft Report and Order in ET Docket No. 04-37, the Broadband over Power Line (BPL) proceeding. The purpose of the proceeding is to establish rules under which BPL can be deployed without unacceptable risk of interference to radiocommunication systems. The ARRL's concern is the risk of interference to 680,000 licensed Amateur Radio stations, including approximately 70,000 HF (1.8-30 MHz) stations that amateurs have installed in land vehicles. Without adequate safeguards, the deployment of BPL systems will result in the pollution and degradation of the unique natural resource of the high-frequency radio spectrum, which supports global communication via the ionosphere with no man-made infrastructure whatsoever.

Because the FCC has been unwilling to release for public review the results of its own tests and observations of BPL systems, the ARRL has no confidence that the draft Report and Order will be based on sound engineering and believes the rush to adoption is unwarranted and premature.

That notwithstanding, here are the key items to look for in the OET draft.

1. **Reduction in the radiated emission limit for BPL systems** of approximately 30 dB below that presently permitted by §15.209(a). The present limit was established with narrowband, point-source radiators in mind. The record in this proceeding clearly establishes that BPL is *not* a point-source radiator. The NTIA has concluded that at the existing Part 15 limit, with the low-to-moderate desired signal levels typical of the Amateur Radio Service, interference is "likely" to receivers in land vehicles 75 meters from BPL-connected power lines and to fixed stations 460 meters from such power lines. ARRL's measurements, observations, and studies support the NTIA's conclusions. Given

the number of amateur stations and the fact that they almost invariably are located near power lines, the areas of potential interference at the existing Part 15 limit are clearly too large to permit case-by-case resolution of interference issues. Based on experience with the very limited test deployments of BPL systems to date, notably in Cedar Rapids, Iowa, Southern Wake County, North Carolina, and Cottonwood, Arizona, widespread BPL deployment at the existing Part 15 radiated emission limit will result in an unmanageable incidence of interference. The only way to reduce these areas of potential interference is to reduce the radiated emission limit. Mandatory "notching" of the amateur bands by 30 dB would reduce the probability of interference to amateur stations sufficiently that interference to amateur stations could be resolved on a case-by-case basis. However, such notching would not solve the problem for other radio services.

2. **Standardization of measurement procedures** as recommended by the NTIA. The ARRL supports the NTIA's conclusions and recommendations.

3. **Certification of Access BPL systems.** The NTIA states in its comments in ET Docket No. 04-37, "NTIA believes that Access BPL devices pose interference risks that are among the highest of the various kinds of authorized, unlicensed devices." The ARRL agrees with NTIA that Certification, and not simply Verification, is the appropriate FCC equipment authorization procedure for BPL systems.

4. **Independent confirmation of rules compliance** before a BPL system is placed in operation. The need for independent verification is illustrated by the six-month progress report by Electric Broadband LLC, licensee of experimental station WB9XVP, submitted to the Commission on September 16, 2004. The report admits that the antenna used in its compliance measurements "failed retesting," that "the condition of the antenna at the time of the tests is now unknown," and "the results may be compromised." In other words, Electric Broadband LLC has no idea whether their system was ever in compliance. However, in their September 3, 2004 response to "James R. Burtle, Chief, Office of Engineering and Technology" [sic], Electric Broadband LLC admits in response to a well-documented interference complaint that their equipment "was designed with self-adjusting gains in the system nodes" that "could permit the system to self-adjust to power levels that would result in Part 15 violations."

5. **Advance public notification of BPL system locations and characteristics.** As proposed in the NPRM, §15.109(g) does not require public notification even though the NPRM speaks, at paragraph 18, of a "publicly accessible database." The only way to ensure that the information is available to the public at the moment a BPL system is activated is to require that it be provided to the public in advance.

6. **Performance standards for interference mitigation.** In the Cedar Rapids case, BPL engineers spent *12 weeks* in a fruitless effort to eliminate interference. The interference was not eliminated until the test was prematurely concluded. During that entire time the BPL system operator, Alliant Energy, continued to operate the system despite the fact that they *knew and acknowledged* that interference was being caused. This is unacceptable. Part 15 device operators do not have the rights of licensees. The only

acceptable interference mitigation standard for a Part 15 device is that the interference be terminated *immediately upon notification to the operator.*

7. **Meaningful penalties for non-compliance.** Simply stated, the FCC needs to levy a fine when willful interference occurs in violation of §333 of the Communications Act. Interference to radiocommunication services from mid-band cable television systems was a significant problem until the FCC began to levy fines for non-compliance and failure to comply became a poor business decision. Cable television systems are shielded, thus excessive leakage is an indication of a system irregularity. In the case of BPL meaningful enforcement is even more important because BPL uses an unshielded transmission medium that is inherently a potential source of interference, even when the system is working as intended.

8. **Consumer protection** notification. To work properly, the marketplace must be an *informed* marketplace. Therefore, marketers of BPL services to consumers must give clear notice to potential customers that licensed radio services have priority and that the delivery of broadband service via BPL cannot be guaranteed. Receipt of this notice must be acknowledged in writing by the consumer prior to the signing of any contract for service. Otherwise, the labelling requirements of Part 15 fall into the category of meaningless boilerplate.

While many questions regarding the desirability of BPL systems remain, the above-listed factors represent the minimum protection of radiocommunication systems required to reduce the incidence of interference to a level that will be manageable on a case-by-case basis. They should be incorporated in the Report and Order in ET Docket No. 04-37 prior to adoption by the Commission.

Thank you for your time.

Sincerely,

David Sumner
Chief Executive Officer